

REMARKS

This amendment is submitted after a previous informal submission and telephone interview between Mr. Alexander and Julian Cohen, the undersigned attorney. As concluded by the Examiner at the interview, the proposed amendments (as submitted herein) distinguish over the art of record. However, the amendment could not be entered because it raised new issues that require further consideration and search. It is requested that this further consideration be given on the basis of this formal submission.

Claims 1 and 103, the basic method and apparatus claims, have been rejected on cited art because the claims are not consistent with the arguments. However, the invention is distinguished in fundamental respect from the cited art in that the invention is based on transmission characteristics of electro magnetic radiation whereas the cited art is concerned with a change in fluorescence or a reflection caused by a change in optical thickness due to deformation of a polymer support layer.

Amended claims 1 and 103 are more specific to the method and apparatus utilizing features from existing claims and not raising new issues.

It is also proposed to cancel claims 182-208 and replace them with “sensor” claim 209.

1. The Examiner has rejected Claims 1-29, 32-66, 103-128, 131-137, 176 and 178 under

35 U.S.C. 102(b) as being anticipated by US 5,866,433 or US 5,611,998. In this connection, the Examiner's attention is respectfully drawn to the following:

1.1 The invention:

The invention provides a method and apparatus for detecting/analyzing one or more chemical substances. This is implemented by providing a device in the form of a structure (first structure) substantially transmitting electromagnetic radiation of a predetermined wavelength range to be measured. The structure **consists of a transparent substrate carrying a first chemical substance-metallic islands moiety**. The first moiety is formed by a plurality of spaced-apart metallic islands on the surface of said substrate and the first chemical substance adsorbed to said surface. This structure has a **certain (first) characteristic of a surface plasmon absorption with respect to electromagnetic radiation of a certain wavelength range, defining the structure transmission profile for said predetermined wavelength range**. This first chemical substance is selected to be capable of adsorbing thereon at least one predetermined chemical substance. Adsorption of this chemical substance will result in the formation of a second structure consisting of said substrate carrying the predetermined chemical substance-first chemical substance-metallic islands moiety, and having a second different characteristic of a surface plasmon absorption with respect to said electromagnetic radiation. Thus, the predetermined substance can be detected by detecting a difference in the transmission profile of the second structure as compared to that of the first structure.

The apparatus of the invention thus utilizes the first structure (as described above) and

the appropriately configured and operable light transmitter and detector, and a processor for analyzing the detected light transmission profile indicative of a response of the structure to the electromagnetic radiation depending on the surface plasmon absorption.

1.2 US 5,866,433

US' 433 discloses a sensor based on the use of a transparent substrate carrying an array of metallic islands and a biorecognitive layer of a fluorescent material. The latter is selected to adsorb certain substance(s) such that the fluorescent response from the sensor with the adsorbed substance significantly increases. This technique utilizes an effect of and a measurement of a change in the fluorescence from the sensor with the certain substance adsorbed thereon.

On the contrary, the invention utilizes a change in the structure's transmission profile for a predetermined wavelength range caused by a change in the surface plasmon absorption of the structure when one or more certain substance is adsorbed thereon.

1.3 US 5,611,998

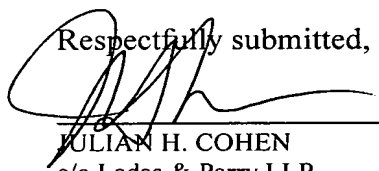
US'998 discloses a sensor device based on the use of an array of metallic islands on a substrate structure. Here, the substrate structure is a stack formed by a mirror layer and a polymer layer on top thereof. Metallic islands are carried by the polymer layer. According to this technique, the polymer layer deforms when exposed to certain chemical environment. The deformation of the polymer layer affects the reflection from the sensor caused by a change in the optical thickness between reflector and metallic islands.

On the contrary, the invention utilizes a sensor structure substantially transmitting a wavelength range to be measured, and consisting of a transparent substrate carrying an array of metallic islands and a certain first chemical substance (first chemical substance-metallic islands moiety); and utilizes an effect of a change in the structure's transmission profile for said wavelength range caused by a change in the surface plasmon absorption of the structure when one or more second substance is adsorbed thereon.

Because of the fundamental differences between the characteristics which are measured and the way in which they are measured, the references are not anticipatory or suggestive of the invention.

Allowance of amended claims 1, 103 and new claim 209 is therefore considered to be warranted.

Respectfully submitted,



JULIAN H. COHEN
c/o Ladas & Parry LLP
26 West 61st Street
New York, New York 10023
Reg. No. 20302
Tel. No. (212) 708-1887